



ORDER NO. RD-628

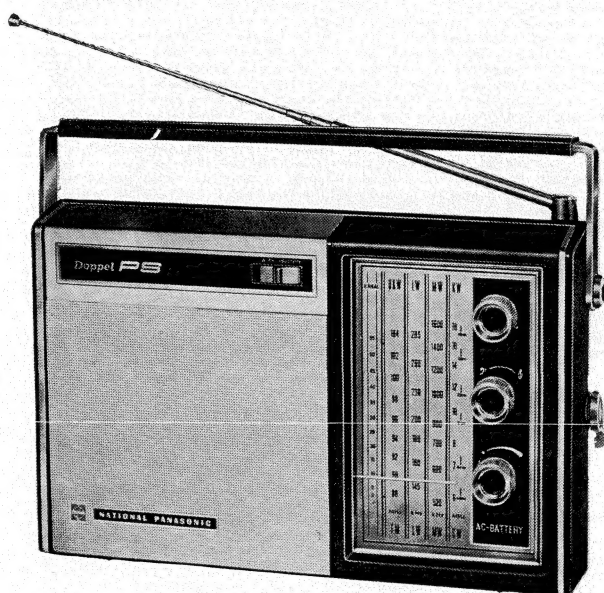


# NATIONAL PANASONIC

## Service Manual

### FM-AM 4-BAND PORTABLE RADIO

MODEL **RF-949LB or VB**



#### SPECIFICATIONS

Frequency Range: FM 87.5~104 MHz...Model RF-949LB  
FM 65.0~74.0 MHz...Model RF 949VB  
LW 145~285 kHz (2060~1060m)  
MW 520~1610 kHz (577~186m)  
SW 5.9~18 MHz (50.8~16.7m)

Intermediate  
Frequency:

Transistors:

FM 10.7 MHz  
AM 455 kHz  
2SC921 FM RF Amplifier  
2SC920 FM Converter  
2SC920 FM IF & AM Converter  
2SC469 } FM & AM IF Amplifier  
2SC469 }  
2SC469 FM IF Amplifier  
2SB173 PRI Amplifier  
2SB173 AF Amplifier  
2SB175 AF Amplifier  
2SB324 } Power Amplifier (push-pull)  
2SB324 }

Diodes:

O A 9 0 FM D. AGC  
O A 9 0 AM D. AGC  
O A 9 0 AM Detector & AGC

Diodes:

O A 9 0 } FM Ratio Detector  
O A 9 0 }  
SC-15 FM AFC  
1S1211 } AOC  
1S1211 }  
1S1850 RECT

Sensitivity:

FM 1 $\mu$ V for 50mW Output  
LW 100 $\mu$ V/m for 50mW Output  
MW 70 $\mu$ V/m for 50mW Output  
SW 10 $\mu$ V for 50mW Output

Power Output:

0.7W Undistorted  
1.5W Maximum

Power Source:

AC (110~125V/220~250V 50~60 Hz)  
or Battery (four "D" size Flashlight  
Batteries 6V) (NATIONAL UM-1 or  
equivalent)

Power Consumption:

5W (AC)

Speaker:

10cm (4") PM Dynamic Speaker, 8 $\Omega$

Cabinet Dimensions: 275(Wide)  $\times$  173(High)  $\times$  72(Deep) mm  
(10 $\frac{3}{32}$ "  $\times$  6 $\frac{13}{32}$ "  $\times$  2 $\frac{7}{32}$ " )

Weight:

2.4 kg. (5 lb. 11.7 oz.) with batteries

<EXPORT DIVISION>

MATSUSHITA ELECTRIC TRADING CO., LTD.  
P. O. Box 288, Central Osaka, Japan

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.  
RADIO and STEREO DIVISION

# MODEL RF-949LB or VB

## To Remove Chassis (Refer to fig. 1)

1. Remove three (3) control knobs from cabinet front.
2. Remove three (3) cabinet back cover mounting screws.
3. Remove cabinet back cover from cabinet.
4. Pull out antenna socket from cabinet back cover.
5. To remove chassis completely, unsolder leadwires to battery terminals.
6. To remove chassis completely, unsolder leadwires to tone switch, external antenna jack and earth jack terminals from back cover.
7. Remove six (6) red screws chassis mounting screws Nos. 1~6, as illustrated in fig. 1.
8. To remove chassis completely, unsolder leadwires to speaker terminals.

**Notes:** Replace earphone/external speaker or phono jack, as illustrated, in fig. 1.  
 Earphone/External speaker jack (Shield wires) .....downward  
 Phono jack (Wires) .....upward

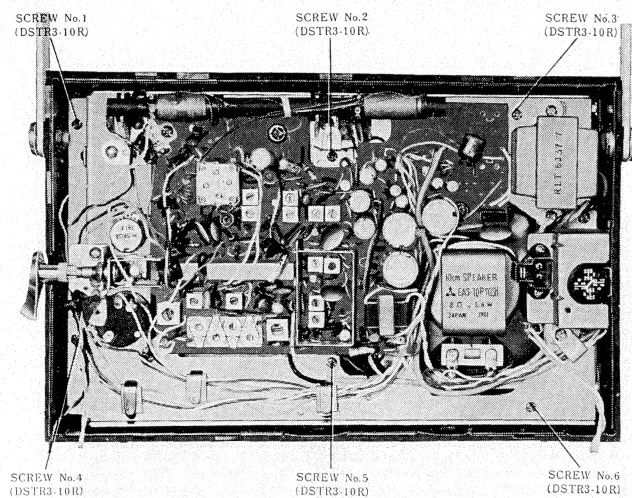


Fig. 1 Top View—Disassembly Points

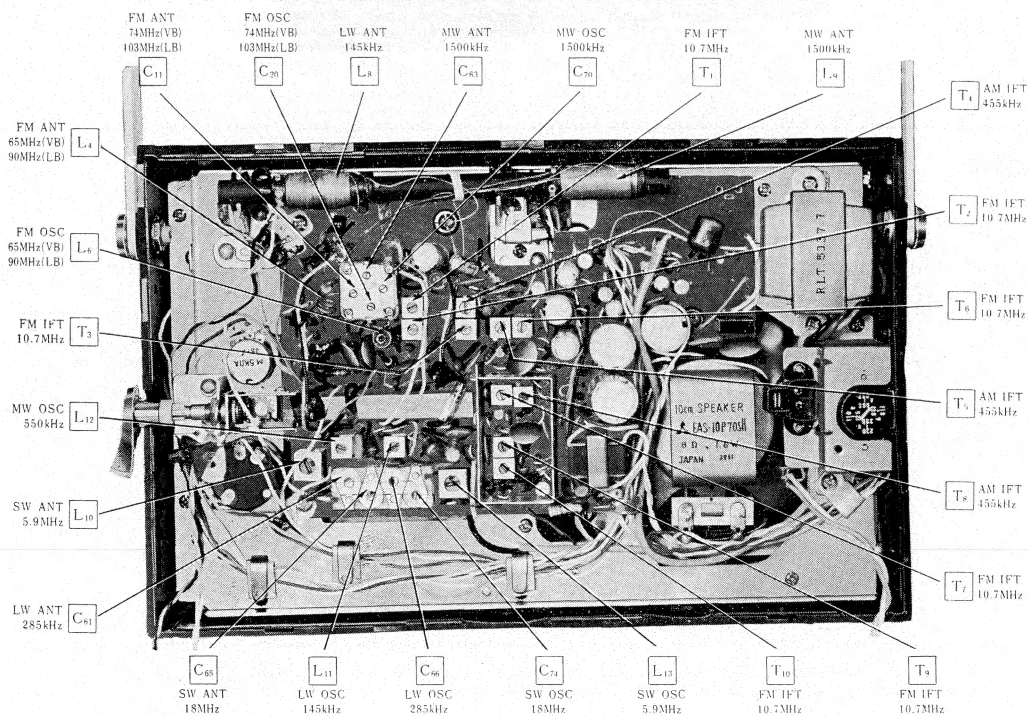


Fig. 2 Alignment Points

ALIGNMENT INSTRUCTIONS

TABLE

Band	Frequency	Distance from "Start Point"		Description
FM	65 MHz	9.2 mm	$\frac{3}{8}$ "	RF-949VB Only
	74 MHz	81.2 mm	$3\frac{3}{8}$ "	
	90 MHz	14.7 mm	$\frac{19}{32}$ "	RF-949LB Only
	103 MHz	78.2 mm	$3\frac{1}{16}$ "	
LW	145 kHz	9.8 mm	$\frac{3}{8}$ "	
	285 kHz	83.5 mm	$3\frac{5}{16}$ "	
MW	550 kHz	9.8 mm	$\frac{3}{8}$ "	
	1500 kHz	83.5 mm	$3\frac{5}{16}$ "	
SW	5.9 MHz	3.5 mm	$\frac{5}{32}$ "	
	18 MHz	88.3 mm	$3\frac{15}{32}$ "	

FREQUENCY & DISTANCE ON DIAL SCALE

To accurately align the proper frequencies to the dial scale, refer to Table and mark the edge of the dial scale plate accordingly using the "Start point" mark on the dial scale as a reference point.

LW, MW, SW RF & IF ALIGNMENT-PORTABLE

Output of signal generator should be no higher than necessary to obtain an output reading. Set volume control to maximum. Set tone control fully counter-clockwise. Set power source voltage to 6 volts DC.						
Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
1 MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz (400 Hz Mod.)	Point of non-interference (on/about 600 kHz)	Output meter across voice coil.	T <sub>4</sub> (AM 1st IFT) T <sub>5</sub> (AM 2nd IFT) T <sub>8</sub> (AM 3rd IFT)	Adjust for maximum output.
2 LW	"	145 kHz (400 Hz Mod.)	145 kHz	"	L <sub>11</sub> (OSC Coil) L <sub>8</sub> (ANT Coil)	Adjust for maximum output by sliding coil (L <sub>8</sub> ) along ferrite core.
3 LW	"	285 kHz (400 Hz Mod.)	285 kHz	"	C <sub>66</sub> (OSC Trimmer) C <sub>61</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4 MW	"	550 kHz (400 Hz Mod.)	550 kHz	"	L <sub>12</sub> (OSC Coil) L <sub>9</sub> (ANT Coil)	Adjust for maximum output by sliding coil (L <sub>9</sub> ) along ferrite core.
5 MW	"	1500 kHz (400 Hz Mod.)	1500 kHz	"	C <sub>70</sub> (OSC Trimmer) C <sub>63</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6 SW	"	5.9 MHz (400 Hz Mod.)	5.9 MHz	"	L <sub>10</sub> (OSC Coil) L <sub>13</sub> (ANT Coil)	Adjust for maximum output by sliding hot side lead of coil.
7 SW	"	18 MHz (400 Hz Mod.)	18 MHz	"	C <sub>46</sub> (OSC Trimmer) C <sub>35</sub> (ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).

Notes: 1. Cement antenna bobbin with wax after completing alignment.  
2. For measurement of sensitivity, connect output meter across speaker voice coil.

FM IF & DETECTOR ALIGNMENT WITH OSCILLOSCOPE

OSCILLOSCOPE

Set sweep selector of oscilloscope to "External Sweep". Apply 60Hz sweep signal from sweep generator to horizontal input terminals of oscilloscope.

EQUIPMENT REQUIRED

Signal generator that provides 10.7 MHz marker.  
Sweep generator that provides 10.7 MHz center frequency and 400 kHz sweep width.  
Set band selector switch to FM.  
Set volume control to minimum.  
Set tone control to high. (  $\oint$  )  
Set AFC switch to OFF.  
Set AC/BATTERY Selector switch to BATTERY.  
Set power source voltage to 6 volts AC.

Note: Unsolder lead between test point TP<sub>3</sub> and Point A before alignment and resolder after alignment.

	SWEEP GENERATOR COUPLING	SIGNAL GENERATOR COUPLING	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
1	High side thru. .001 $\mu$ F to point TP <sub>2</sub> . Common to chassis.	High side thru. .001 $\mu$ F to point TP <sub>2</sub> . Common to chassis.	Point of non-interference. (on/about 96 MHz)	Connect vert. Amp. of scope to point TP <sub>3</sub> . Common to chassis.	T <sub>1</sub> (FM 1st IFT) T <sub>2</sub> (FM 2nd IFT) T <sub>3</sub> (FM 3rd IFT) T <sub>6</sub> (FM 4th IFT) T <sub>7</sub> (FM 5th IFT) T <sub>9</sub> (FM 6th IFT)	Adjust for maximum amplitude and proper linearity between $\pm 100$ kHz markers. (Refer to fig. 3)
2	"	"	"	Connect vert. Amp. of scope to point TP <sub>3</sub> . Common to chassis.	T <sub>10</sub> (FM 6th IFT) (Secondary)	Adjust T <sub>10</sub> so that 10.7 MHz marker appears at the center. (Refer to fig. 4)

Note: When aligning the Ratio Detector circuit, the wave form may appear as in figs. 3 & 4 or upside-down.

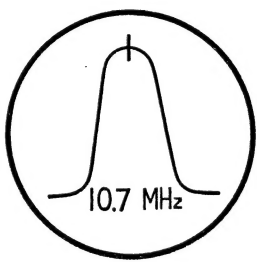


Fig. 3

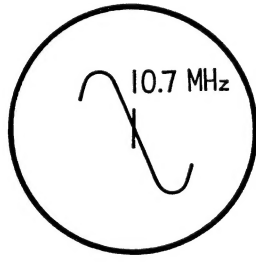


Fig. 4

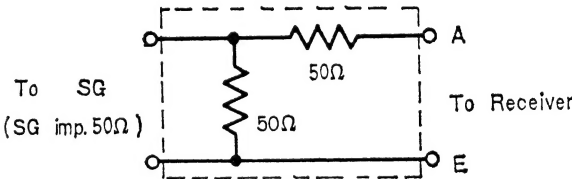
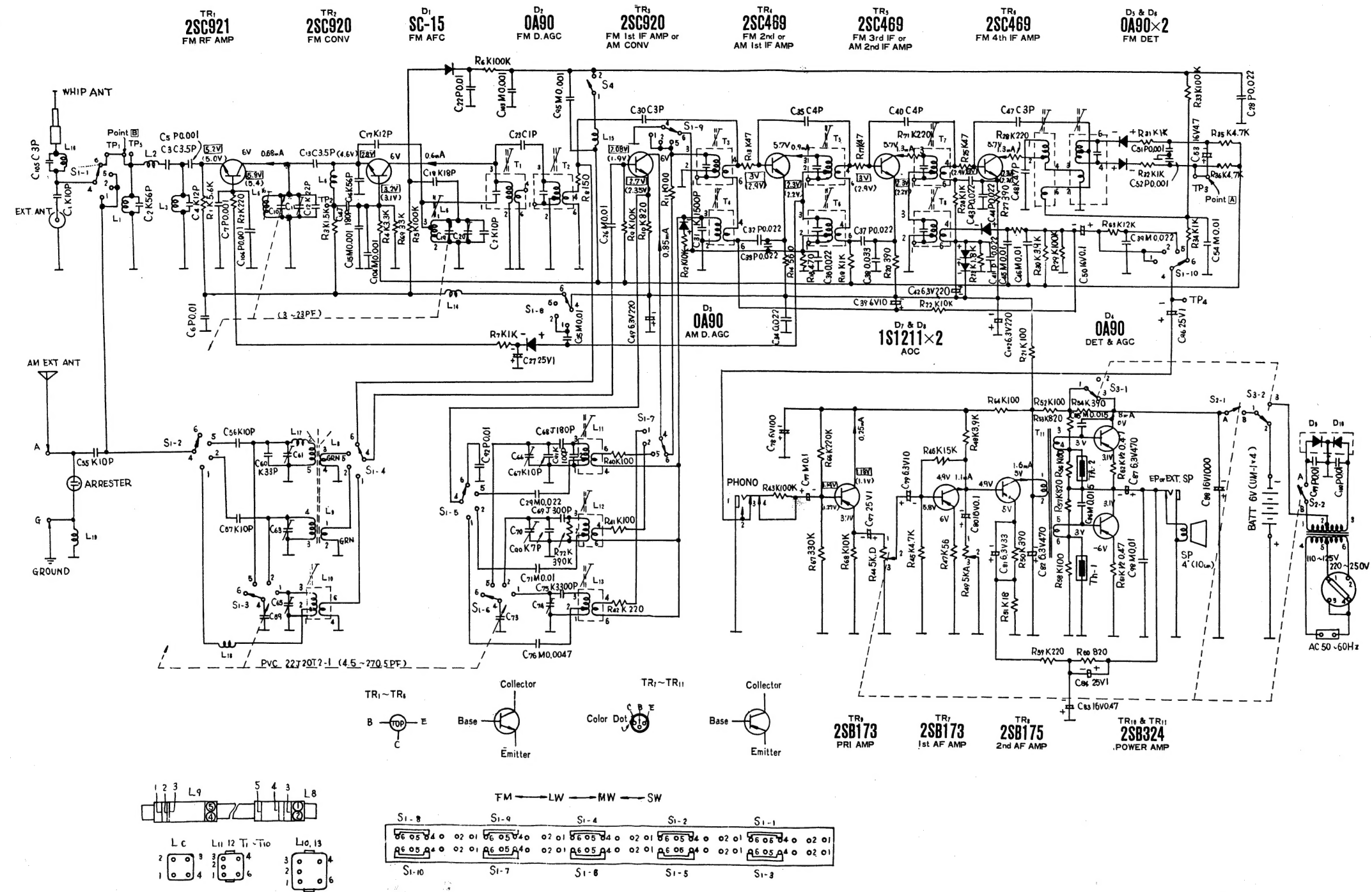


Fig. 5 FM Dummy Antenna

FM RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading. Set volume control to maximum. Set band selector switch to FM. Set AFC switch to OFF. Set AC/BATTERY selector switch to "BATTERY". Set power source switch to 6 volts DC.						
Set tone control to high. Note: Unsolder lead between test point TP <sub>1</sub> and Point B before alignment and resolder after alignment.						
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUSTMENT	REMARKS
3	Connect to point TP <sub>5</sub> through FM Dummy antenna. Common to chassis. (Refer to fig. 5)	65 MHz (RF-949VB only) 90 MHz (RF-949LB only) (400 Hz Mod.)	65 MHz (RF-949VB only) 90 MHz (RF-949LB only)	Output meter across earphone jack. (Load 8 $\Omega$ )	L <sub>6</sub> (FM OSC Coil) L <sub>4</sub> (FM ANT Coil)	Adjust for maximum output.
4	"	74 MHz (RF-949VB only) 103 MHz (RF-949LB only) (400 Hz Mod.)	74 MHz (RF-949VB only) 130 MHz (RF-949LB only)	"	C <sub>20</sub> (FM OSC Trimmer) C <sub>11</sub> (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (3) and (4).

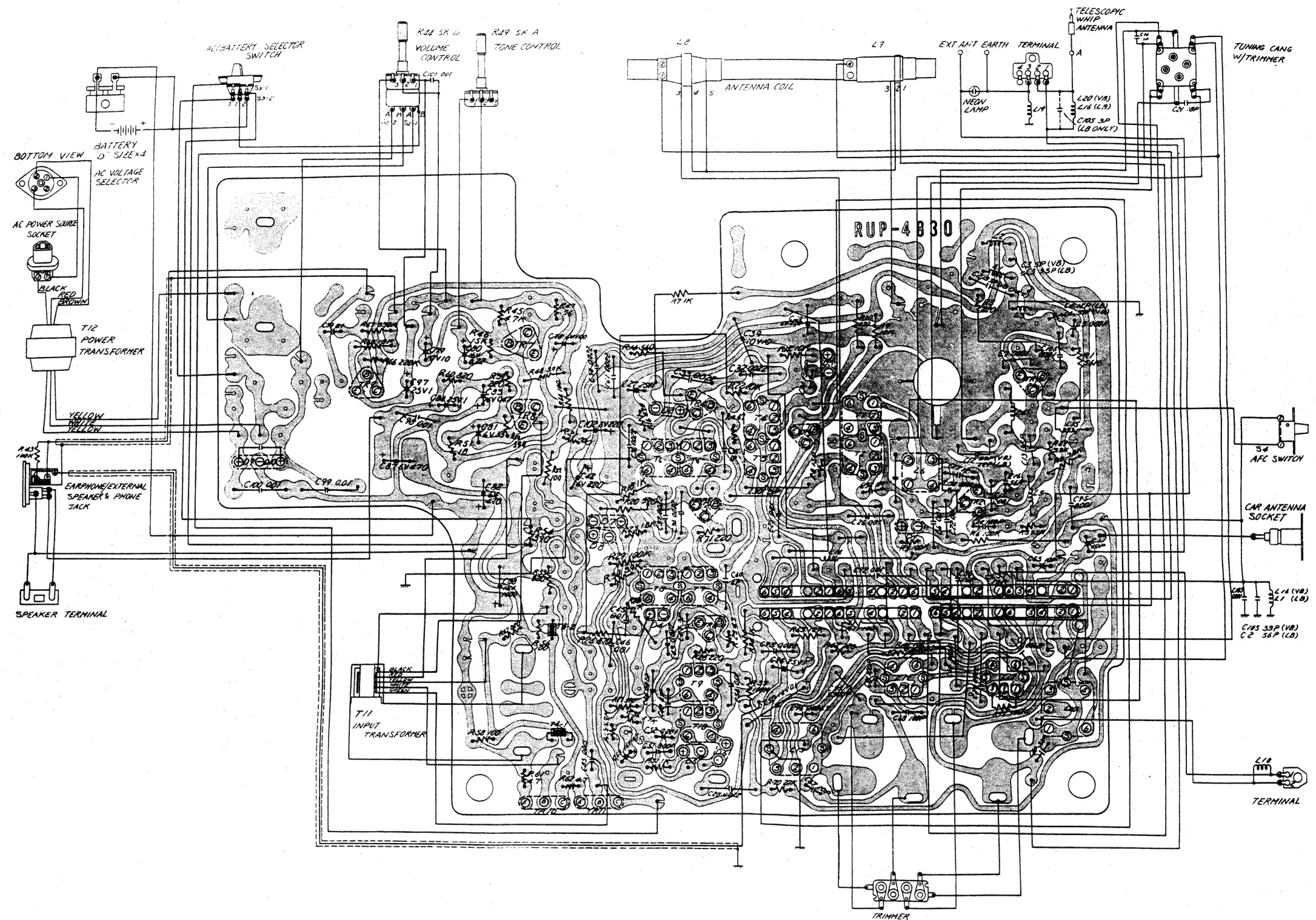
Note: As three output responses will be present, proper tuning is the center frequency.



- Notes:**
1. S1-1~S1-10: Band selector switch in "FM" position.
  2. S2-1, S2-2: Power source switch in "OFF" position.
  3. S3-1, S3-2: AC/BATTERY selector switch in "BATTERY" position.
  4. S4: AFC switch in "ON" position.
  5. DC voltage measurements are taken with circuit tester (10K $\Omega$ /V) from negative terminal of battery.  
□.....FM position. ( ).....AM position.
  6. Capital letters (M, K, J, P, C, D) in the circuit diagram show allowable tolerance of resistors and capacitors as follows:  
M=±20% K=±10% J=±5% P=+100% C=±0.25PF D=±0.5PF — 0%
  7. Battery current: No signal.....FM & AM 26mA  
Maximum output.....FM & AM 180mA
  8. PF=pico farad=mmf  
μF=micro farad=mfd
  9. All resistor values in ohms (K=1000 $\Omega$ ).
  10. All capacitor values in micro farads (P=mmf).

Fig. 6 Schematic Diagram





- Notes:
1. All resistor values in ohms ( $K=1000\Omega$ ).
  2. All capacitor values in micro farads ( $P=\mu F$ ).

Fig. 8 Circuit Board Wiring View (Conductor Side).

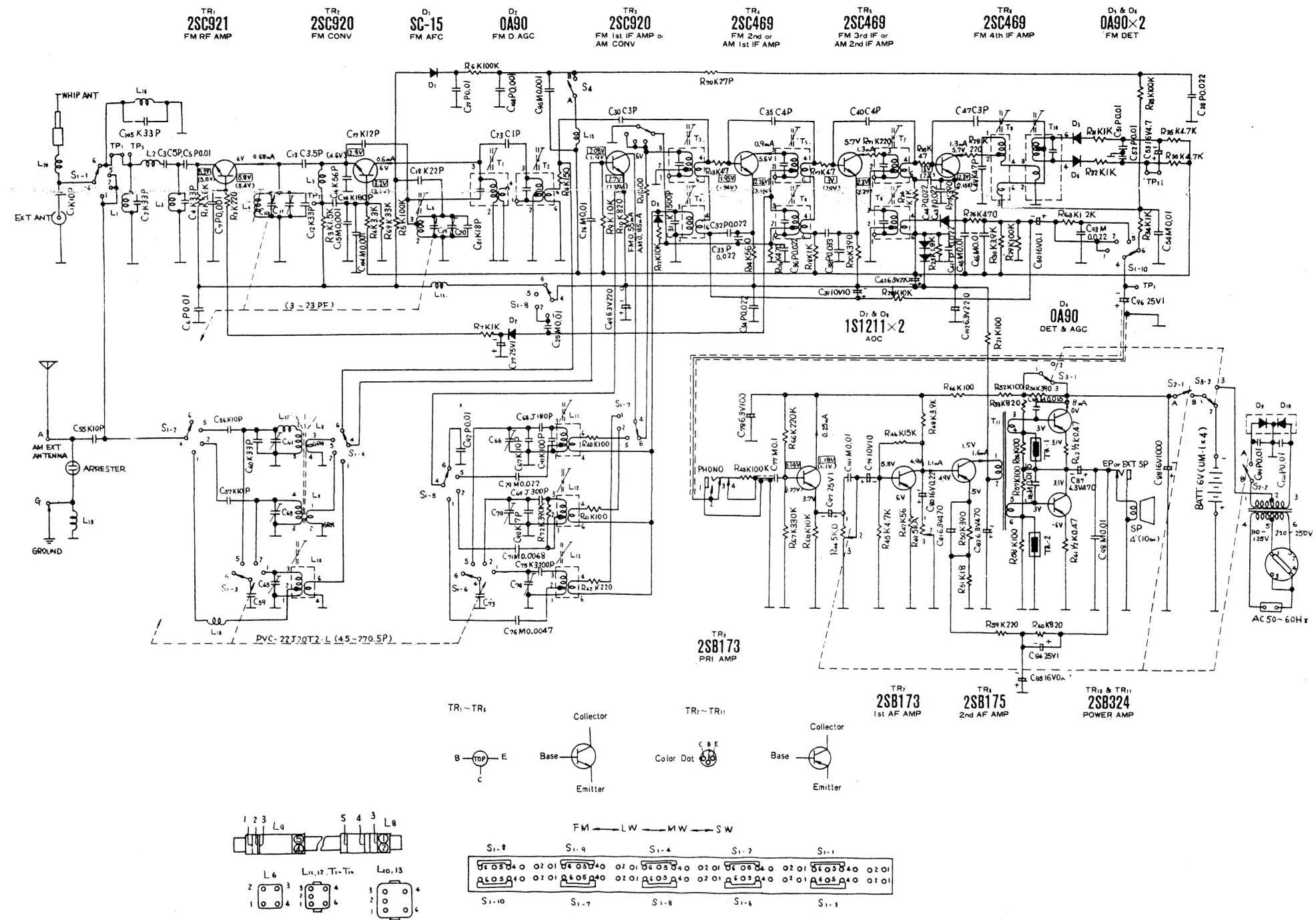


Fig. 7 Schematic Diagram



## Capacitors, Transformers, Coils & Trimmers

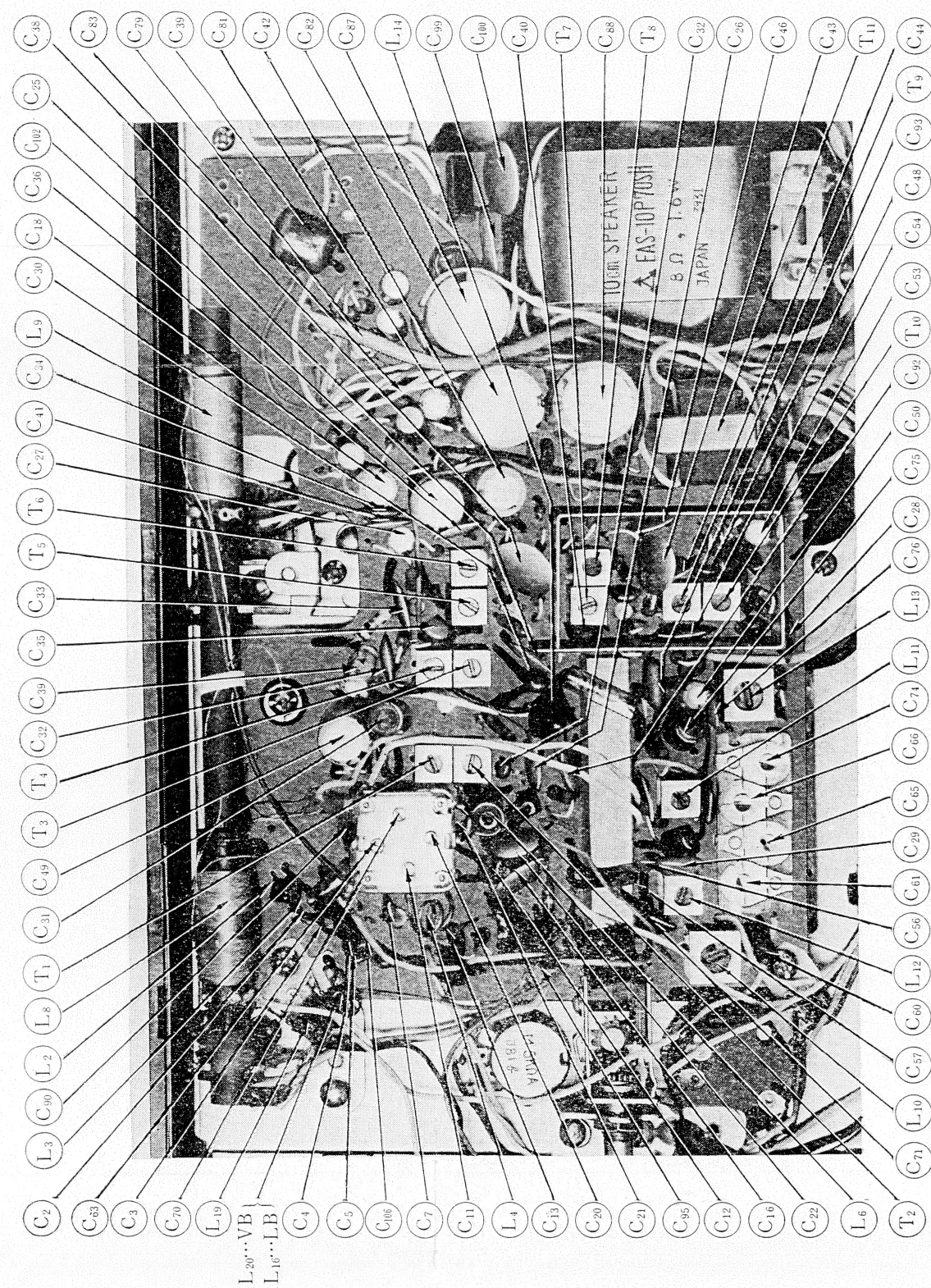


Fig. 9 Component View—Parts Identification

## Resistors, Transistors, Diodes &amp; Thermistor

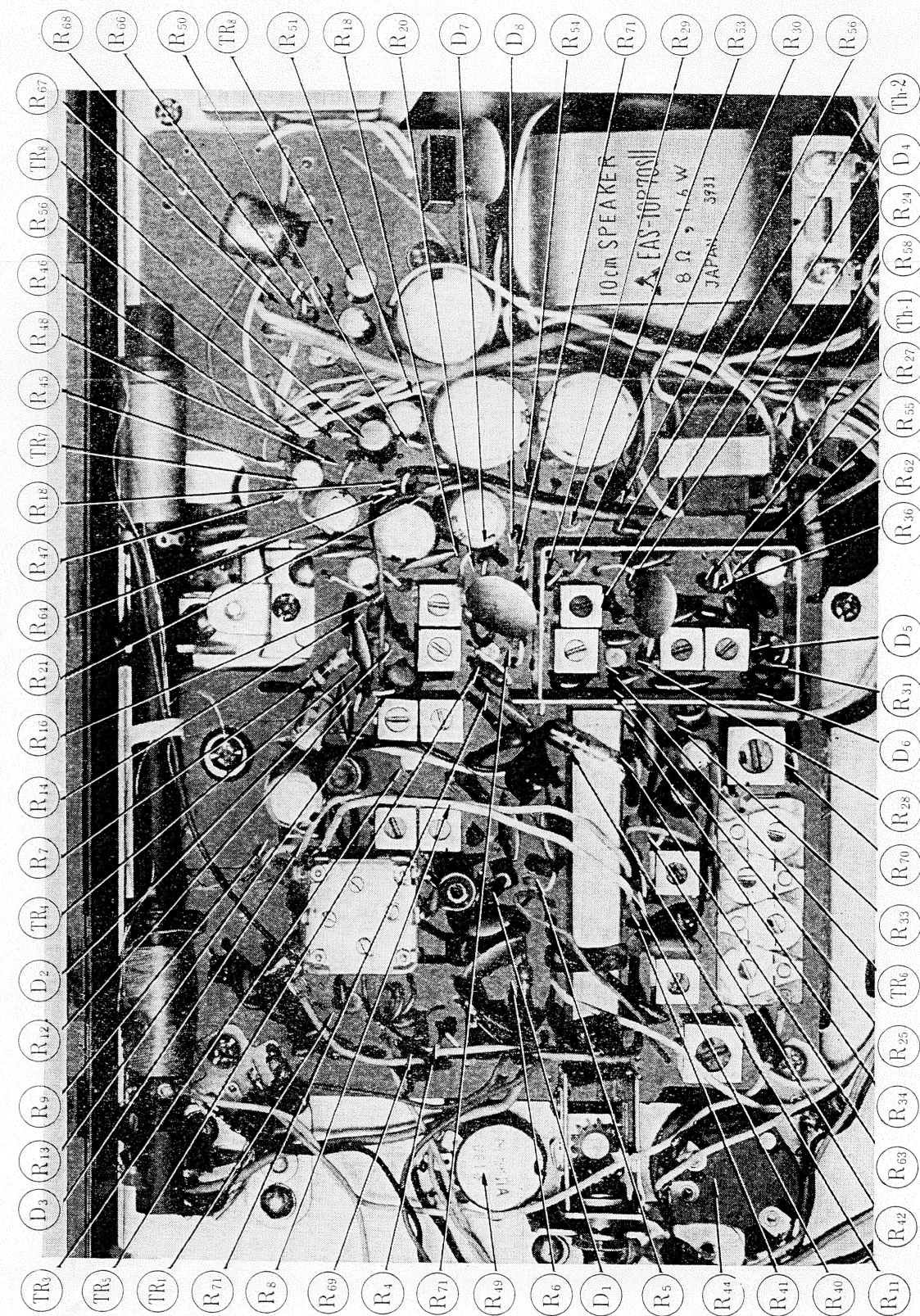


Fig. 10 Component View—Parts Identification





REPLACEMENT PARTS LIST

Notes: 1. \* indicates parts for the complete cabinet which are included when the cabinet is ordered.  
2. Stock numbers are indicated on most mechanical parts. Please use this number, therefore, when ordering parts.  
3. ISO metric thread screws & parts which employ ISO metric thread screws are identified by ISO marking.

Ref. No.	Part No.	Description
TRANSISTORS AND DIODES		
TR <sub>1</sub>	2SC921	FM RF Amplifier
TR <sub>2</sub>	2SC920	FM Converter
TR <sub>3</sub>	2SC920	FM 1st IF Amplifier or AM Converter
TR <sub>4</sub>	2SC469	FM 2nd IF Amplifier or AM 1st IF Amplifier
TR <sub>5</sub>	2SC469	FM 3rd IF Amplifier or AM 2nd IF Amplifier
TR <sub>6</sub>	2SC469	FM 4th IF Amplifier
TR <sub>7</sub>	2SB173	1st AF Amplifier
TR <sub>8</sub>	2SB175	2nd AF Amplifier
TR <sub>9</sub>	2SB173	Pre. Amplifier
TR <sub>10</sub> , TR <sub>11</sub>	2SB324	Power Amplifier
D <sub>1</sub>	SC-15	FM AFC
D <sub>2</sub>	OA90	FM D. AGC
D <sub>3</sub>	OA90	AM D. AGC
D <sub>4</sub>	OA90	AM Detector & AGC
D <sub>5</sub> , D <sub>6</sub>	OA90	FM Detector
D <sub>7</sub> , D <sub>8</sub>	1S1211	AOC
THERMISTORS		
Th <sub>1</sub>	MT-080	Temperature Compensator
Th <sub>2</sub>	MT-080	Temperature Compensator
CAPACITORS		
C <sub>5</sub> , C <sub>7</sub> , C <sub>51</sub> , C <sub>52</sub> , C <sub>106</sub>	ECK-D05102P	0.001μF, 50WV, +100%, Ceramic...C <sub>106</sub> (RF-949LB) - 0%,
C <sub>6</sub> , C <sub>22</sub> , C <sub>92</sub>	ECK-E05103P	0.01μF, 50WV, +100%, Ceramic - 0%,
C <sub>28</sub> , C <sub>32</sub> , C <sub>33</sub> , C <sub>34</sub> , C <sub>36</sub> , C <sub>37</sub> , C <sub>41</sub> , C <sub>43</sub> , C <sub>44</sub>	ECK-E05223P	0.022μF, 50WV, +100%, Ceramic - 0%,
C <sub>15</sub> , C <sub>95</sub> , C <sub>103</sub> , C <sub>104</sub>	ECK-E05102MY	0.001μF, 50WV, ±20%, Ceramic
C <sub>76</sub>	ECK-E05472MY	0.0047μF, 50WV, ±20%, Ceramic
C <sub>25</sub> , C <sub>26</sub> , C <sub>45</sub> , C <sub>46</sub> , C <sub>54</sub> , C <sub>98</sub>	ECK-E05103MY	0.01μF, 50WV, ±20%, Ceramic
C <sub>99</sub> , C <sub>100</sub>	ECK-D5103P	0.01μF, 500WV, +100%, Ceramic - 0%,
C <sub>23</sub>	ECC-D05010C	1PF, 50WV, ±0.25PF, Ceramic
C <sub>30</sub> , C <sub>47</sub>	ECC-D05030C	3PF, 50WV, ±0.25PF, Ceramic
C <sub>3</sub> , C <sub>13</sub>	ECC-D053R5C	3.5PF, 50WV, ±0.25PF, Ceramic
C <sub>3</sub>	ECC-D05050C	5PF, 50WV, ±0.25PF, Ceramic...C <sub>4</sub> (RF-949LB)
C <sub>35</sub> , C <sub>40</sub>	ECC-D05040C	4PF, 50WV, ±0.25PF, Ceramic
C <sub>1</sub> , C <sub>21</sub> , C <sub>55</sub> , C <sub>56</sub> , C <sub>57</sub> , C <sub>67</sub>	ECC-D05100KC	10PF, 50WV, ±10%, Ceramic
C <sub>21</sub>	ECMS-05180KH	18PF, 50WV, ±10%, Mica... (RF-949LB)
C <sub>18</sub>	ECC-D05180KC	18PF, 50WV, ±10%, Ceramic... (RF-949LB)
C <sub>4</sub> , C <sub>17</sub>	ECC-D05120KC	12PF, 50WV, ±10%, Ceramic...C <sub>4</sub> (RF-949LB)
C <sub>18</sub>	ECC-D05220KC	22PF, 50WV, ±10%, Ceramic... (RF-949VB)
C <sub>90</sub>	ECC-D05070D	7PF, 50WV, ±0.5PF, Ceramic
C <sub>60</sub> , C <sub>105</sub>	ECM-S05330K-H	33PF, 50WV, ±10%, Mica
C <sub>48</sub>	ECM-S05470K-H	47PF, 50WV, ±10%, Mica
C <sub>2</sub> , C <sub>16</sub>	ECM-S05560K-H	56PF, 50WV, ±10%, Mica...C <sub>2</sub> (RF-949LB)
C <sub>2</sub> , C <sub>4</sub> , C <sub>12</sub>	ECM-S05330K-H	33PF, 50WV, ±10%, Mica...C <sub>2</sub> , C <sub>12</sub> (RF-949VB)
C <sub>91</sub>	ECM-S05101K-H	100PF, 50WV, ±10%, Mica
C <sub>68</sub>	ECM-S05181J-H	180PF, 50WV, ±10%, Mica
C <sub>14</sub>	ECC-D05181K	180PF, 50WV, ±10%, Ceramic
C <sub>69</sub>	ECQ-S1301JZ	300PF, 125WV, ± 5%, Styrol
C <sub>31</sub>	ECQ-S1152KZ	1500PF, 125WV, ±10%, Styrol
C <sub>75</sub>	ECQ-S05332KH	3300PF, 50WV, ±10%, Styrol
C <sub>101</sub>	ECQ-G05103MZ	0.01μF, 50WV, ±20%, Polyester
C <sub>85</sub> , C <sub>86</sub>	ECQ-G05153MZ	0.015μF, 50WV, ±20%, Polyester
C <sub>77</sub>	ECQ-G05104MZ	0.1μF, 50WV, ±20%, Polyester
C <sub>29</sub> , C <sub>93</sub>	ECQ-G05223MZ	0.022μF, 50WV, ±20%, Polyester
C <sub>71</sub>	ECQ-G05682MZ	0.0068μF, 50WV, ±20%, Polyester
C <sub>12</sub>	ECM-S05220KC	22PF, 50WV, ±10%, Mica... (RF-949LB)

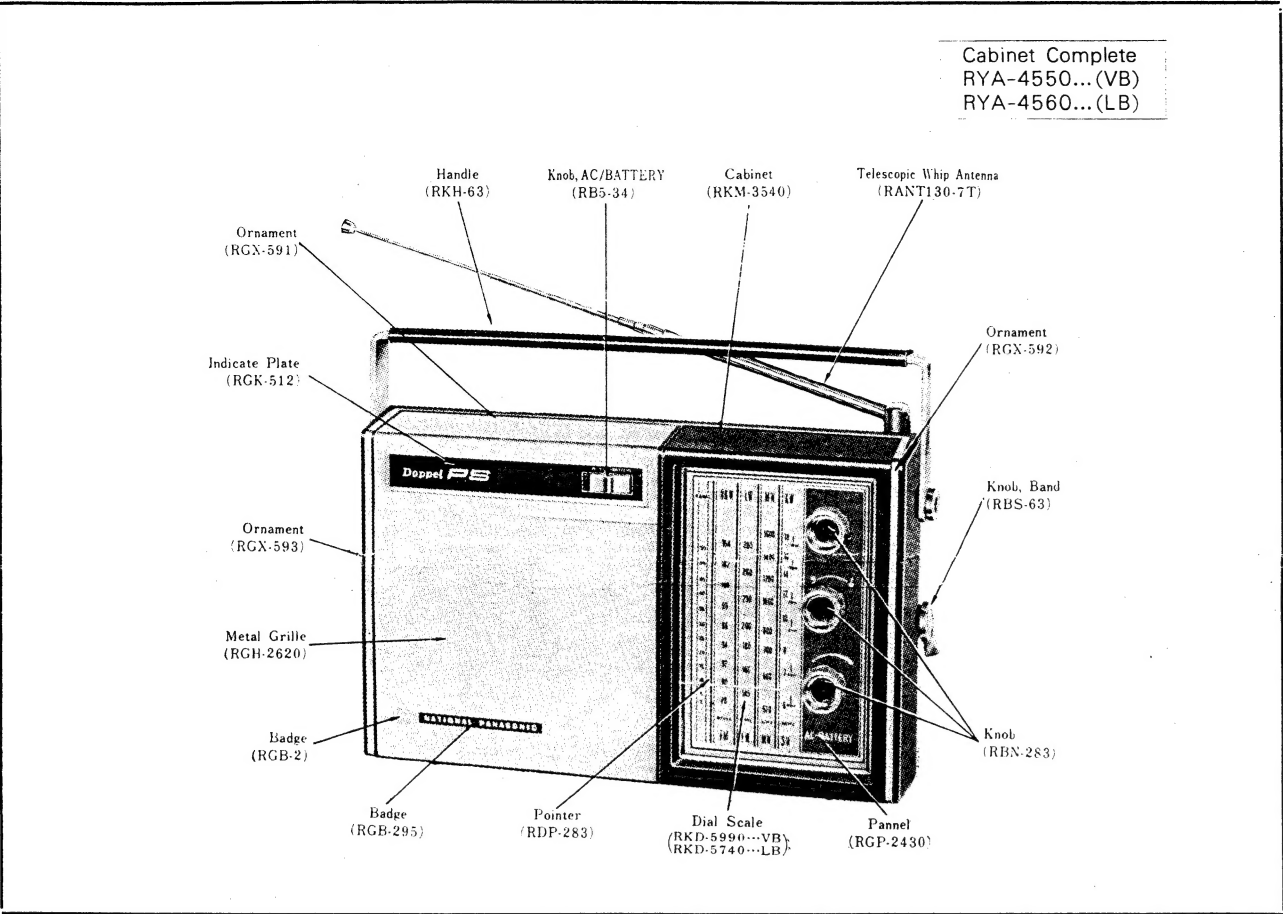


Fig. 11 Cabinet & Appearance—Parts Identification

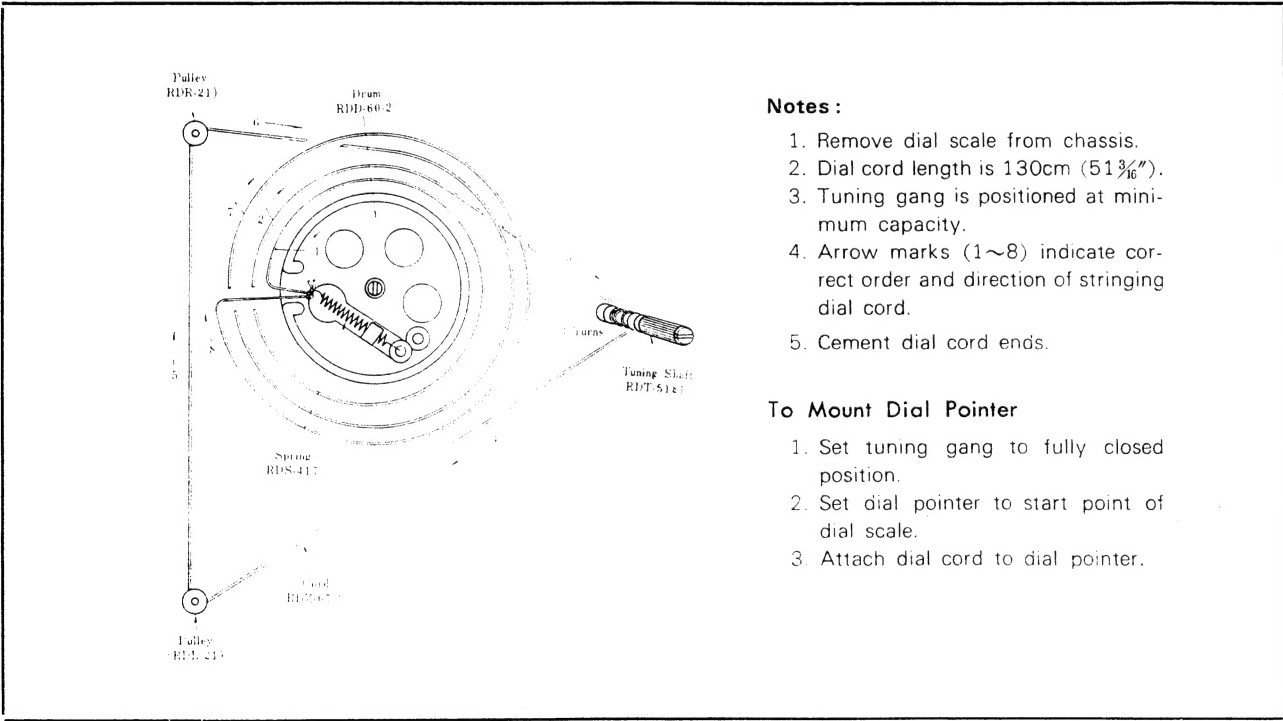



Fig. 12 Dial Cord Stringing Guide



**MODEL RF-949LB or VB**

Ref No.	Part No.	Description
<b>CAPACITORS</b>		
C50	ECA-G16ER1 or ECA-G16ER1-Y	0.1 $\mu$ F, 16WV, Electrolytic
C80	ECA-G16ER22 or ECA-G16ER22-Y	0.22 $\mu$ F, 16WV, Electrolytic
C83	ECA-G16ER47 or ECA-G16ER47-Y	0.47 $\mu$ F, 16WV, Electrolytic
C39, C79	ECE-A10V10	10 $\mu$ F, 10WV, Electrolytic
C81	ECE-A6V33	33 $\mu$ F, 6 WV, Electrolytic
C78	ECE-A6V100	100 $\mu$ F, 6 WV, Electrolytic
C42, C49, C102	ECE-A6V220	220 $\mu$ F, 6 WV, Electrolytic
C82, C87	ECE-A6V70	470 $\mu$ F, 6 WV, Electrolytic
C88	ECE-A16V1000	1000 $\mu$ F, 16WV, Electrolytic
C53	ECE-A16V4R7	4.7 $\mu$ F, 16WV, Electrolytic
C27, C84, C96, C97	ECE-A25V1	1 $\mu$ F, 25WV, Electrolytic
C61, C65, C66, C74	ECV-4RW12W13Z	Trimmer Capacitor
C10, C19, C59, C70	PVC-22J20T2-1	Tuning Gang w/Trimmer (C11, C20, C63, C73)
<b>RESISTORS</b>		
R61, R62	ERW-12LR47	0.47 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Wire
R51	ERD-14VK 180	18 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R13, R17, R25	ERD-14VK 470	47 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R47	ERD-14VK 560	56 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R21, R40, R41, R52, R56, R58, R64	ERD-14VK 101	100 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R8	ERD-14VK 151	150 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R2, R28, R42, R59, R71	ERD-14VK 331	330 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R20, R27, R50, R54	ERD-14VK 391	390 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R16	ERD-14VK 471	470 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R14	ERD-14VK 561	560 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R10, R53, R57, R60	ERD-14VK 821	820 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R18, R24, R31, R32, R34	ERD-14VK 102	1K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R23	ERD-14VK 182	1.8K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R4	ERD-14VK 332	3.3K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R30, R48	ERD-14VK 392	3.9K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R35, R36, R45	ERD-14VK 472	4.7K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R63	ERD-14VK 123	12K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R9, R12, R22, R68	ERD-14VK 103	10K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R46	ERD-14VK 153	15K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R70	ERD-14VK 273	27K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R69	ERD-14VK 333	33K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R5, R29, R33	ERD-14VK 104	100K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R7	ERD-14TK 102	1K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R3	ERD-14TK 152	1.5K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R6, R43	ERD-14TK 104	100K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R1	ERD-14TK 562	5.6K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R11	ERD-14TK 101	100 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R26	ERD-14TK 471	470 $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R72	ERD-14TK 394	390K $\Omega$ , $\frac{1}{4}$ Watt, $\pm 10\%$ , Carbon
R44	EVC-BOLL20D53	5K $\Omega$ , D Volume Control
R49	EVH-BOAL20A53	5K $\Omega$ , A Tone Control
<b>COILS AND TRANSFORMERS</b>		
L1, L3, L16	RLQ-Y25S-5	FM Air Coil
L2, L17, L18	RLQ-Y75S-5	FM Air Coil
L4	RLD-4Y53	FM Detector Coil...RF-949LB
L4	RLD-4Y55	FM Detector Coil...RF-949VB
L6	RLO-4N29	FM Oscillator Coil...RF-949LB
L6	RLO-4N32	FM Oscillator Coil...RF-949VB
L8, L9	RLF-6F4	LW, MW Antenna Coil
L10	RLA-3C20-M	SW Antenna Coil
L11	RLO-1B5	LW Oscillator Coil
L12	RLO-2B54	MW Oscillator Coil
L13	RLO-3C18	SW Oscillator Coil
L15	RLQ-Y15G-5	FM Air Coil...RF-949LB
L15	RLQ-Y75S-5	FM Air Coil...RF-949VB
L20	RLQ-Y50S-5	FM Air Coil...RF-949VB
T1	RLI-4B152	FM 1st IF Transformer

**MODEL RF-949LB or VB**

Ref. No.	Part No.	Description
COILS AND TRANSFORMERS		
T <sub>2</sub>	RLI-4B351	FM 2nd IF Transformer (P)
T <sub>3</sub>	RLI-4B351	FM 3rd IF Transformer (S)
T <sub>4</sub>	RLI-2B152	AM 1st IF Transformer
T <sub>5</sub>	RLI-2B257	AM 2nd IF Transformer
T <sub>6</sub>	RLI-4B351	FM 4th IF Transformer (P)
T <sub>7</sub>	RLI-4B351	FM 5th IF Transformer (S)
T <sub>8</sub>	RLI-2B457	AM 3rd IF Transformer
T <sub>9</sub>	RLI-4B551	FM 6th IF Transformer
T <sub>10</sub>	RLI-4B552	FM 6th IF Transformer
T <sub>11</sub>	RLT-3G25	Input Transformer, Imp. P=1.5K $\Omega$ :S=200 $\Omega$
T <sub>12</sub>	RLT-5J37-V	Power Transformer
SPEAKER AND EARPHONE		
SP	EAS-10P70SH	10cm (4") PM Dynamic Speaker, Imp. 8 $\Omega$
EP	EAE-1FB	Magnetic Earphone, Imp. 8 $\Omega$
SWITCHES		
S <sub>1-1</sub> ~S <sub>1-10</sub>	RSR-24	Band Selector Switch
S <sub>3-1</sub> ~S <sub>3-2</sub>	RSS-78	AC/BATTERY Select Switch
S <sub>4</sub>	RSS-71	AFC Switch
MISCELLANEOUS		
	RJJ-83	Jack, Earphone/External Speaker & Phono
	RJF-3107	Jack, Car Antenna
	RJJ-56	Jack, Power Source
	RSR-25	Selector, Power Voltage
	RJC-102	Terminal, Battery
	RJC-502	Spring, Battery
	*RJK-1404	Case, Battery
	RANT130-7T	Telescopic Whip Antenna
	RMA-357	Bracket, Telescopic Whip Antenna
	RDT-5181	Shaft, Tuning
	RMA-225	Bracket, Core Antenna
	RMC-173	Case, Shield
	RHG-9	Rubber, Cushion Tuning Gang
	RMY-40	Heat Sink
	RDD-60-4	Drum, Dial
	RDZ-07-1	Dial Cord, 52 inches
	RDS-417	Dial Spring
	RKD-5740	Dial Scale...RF-949LB
	RKD-5990	Dial Scale...RF-949VB
	RDP-283	Dial Pointer
	DSTR3-10R	Red Screw Chassis M'tg.
	+B3-10KS	Screw Back Cover M'tg. 
	RVL-408	Arrester
	RJA-48	Cord, AC Line
APPEARANCE		
	RYA-4560	Cabinet Completely...RF-949LB
	RYA-4550	Cabinet Completely...RF-949VB
	*RKM-3540	Cabinet Only
	*RKF-2800	Cabinet Back Cover
	*RKK-560	Cover, Battery Compartment
	RKH-63	Handle
	RKT-38	Bracket, Handle
	*RBS-34	Knob AC/BATTERY Selector
	RBE-52	Stopper, RBS-34
	RHR-528	Spacer, RBE-52
	RJS-27-1	Lug, Whip Antenna
	RGT-1265	Name Plate...RF-949LB
	RGT-1293	Name Plate...RF-949VB
	RBN-238	Knob, Tuning, Tone & Volume Control
	RBS-63	Knob, Band Selector